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DECserver 300

Software Installation (VMS)

Order Number: AA–NE45B–TE

DECserver 300

Software Installation (VMS)

April 1991

This manual tells you how to install the DECserver 300 distribution software on VMS systems, how to establish these systems as load hosts, and how to verify the system installation. This manual is for the software installer; either the VMS system manager or the network manager.

Supersession/Update Information:	This is a revised manual.
Operating System and Version:	VMS V5.0
Software Version:	DECserver 300 V2.0

This manual applies to Version 2.0 of DECserver 300 software and Version 5.0 of the VMS operating system, and all subsequent maintenance releases up to the next major product release.

digital™

Order Number: AA–NE45B–TE

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Intended Audience

This manual is for system managers or network managers who are responsible for installing terminal server products on their local area networks (LANs). A system manager is responsible for the VMS™ system that is about to be established as a load host. A network manager is the person responsible for the LAN.

To install the DECserver™ 300 terminal server, you should be familiar with both DECnet™ Phase IV network management concepts and the VMS operating system.

Structure of This Manual

This manual has four chapters and two appendixes:

Chapter 1	Summarizes the installation, configuration, and verification procedures.
Chapter 2	Explains how to install the distribution software.
Chapter 3	Explains how to configure the load host's node database.
Chapter 4	Explains how to verify the installation by first down-line loading the server image and then testing a few server commands.
Appendix A	Lists the names of the files in the DECserver 300 distribution kit.
Appendix B	Discusses briefly the remote console facility (RCF).

Conventions Used in This Manual

To use this manual effectively, you should be familiar with the conventions discussed in this section:

- All numbers are decimal unless otherwise noted.
- All Ethernet addresses are hexadecimal.

Convention	Meaning
`Special type`	This special type indicates system output or user input. System output is in black type; user input is in red type.
UPPERCASE	VMS commands, node names, directory names, and file names appear in uppercase letters.
italic	Italic type in command syntax indicates variables for which either you or the system supplies a value.
[ ]	Square brackets in command syntax statements indicate that the enclosed value(s) are optional. You can enter none or one. Default values apply for unspecified options. (Do not type the brackets.)
$\boxed{\textit{key}}$	Press the specified key. For example, $\boxed{\text{RET}}$ means that you should press the RETURN key.
$\boxed{\text{CTRL}/x}$	Hold down the CONTROL key and simultaneously press the key specified by *x*. The server displays this key combination as ^*x*.

1

Installation Overview

1.1 Installation Overview

The software that you are about to install consists of the files in the DECserver 300 distribution kit. The installation consists of four basic steps:

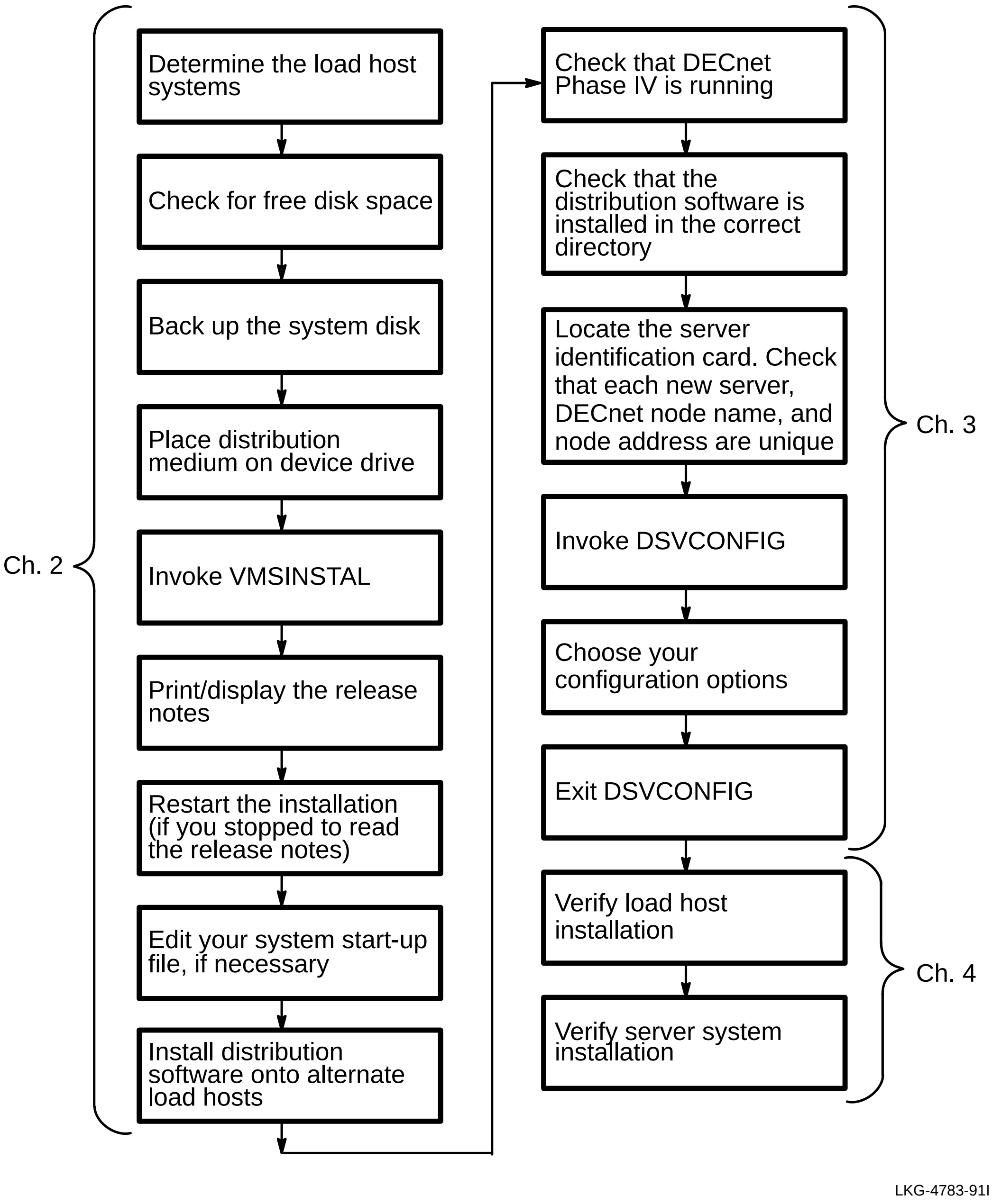
1. Install the distribution software on your VMS system.
2. Configure your system node database for all new terminal servers.
3. Verify the installation by configuring and down-line loading one test terminal server. Down-line loading means sending the terminal server image from the established load host to the terminal server.
4. Issue a few terminal server commands to test the terminal server system.

NOTE

If you have the Terminal Server Manager (TSM) software, an optional network management product available for VMS load hosts, read the documentation for TSM before you install the DECserver 300 software. TSM affects the way you install and manage terminal servers.

Figure 1–1 provides a flow chart of the installation process. The steps in the flow chart serve as an overview of installing the distribution software and configuring the load host's node database.

Figure 1–1: Terminal Server Software Installation Flow Chart



1.2 Load Host's Node Database Overview

Configuration of the load host's node database means defining an entry for each terminal server in three places:

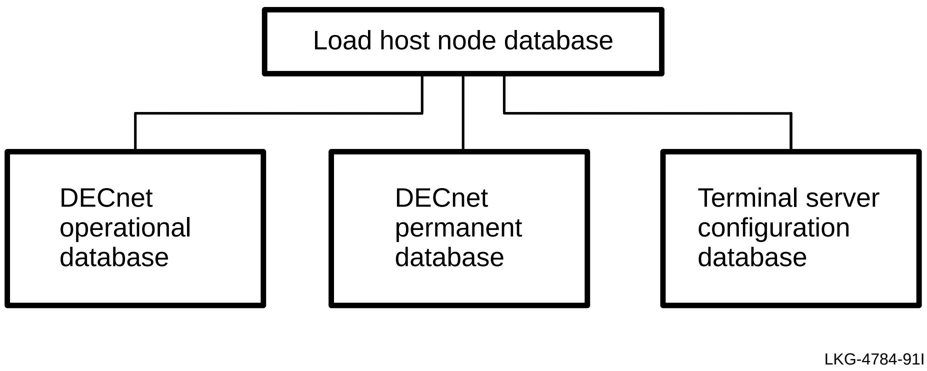
- A data file called DSVCONFIG.DAT.

  The DSVCONFIG.DAT file is the terminal server configuration database. DSVCONFIG.DAT is automatically created by DSVCONFIG and is part of a load host's node database (Figure 1–2).

- The DECnet operational (volatile) database.
- The DECnet permanent database.

When you complete the configuration procedure, your VMS system is established as a load host for each terminal server that has an entry in the load host's node database.

Figure 1–2: Load Host Database Configuration



1.3 Prerequisite and Optional Products

The *DECserver 300 Software Product Description* contains a list of prerequisite and optional products for the DECserver 300 terminal server.

1.4 Estimated Installation Time

The installation process should take approximately 5 minutes. The number of servers you are adding to the database may increase your installation time.

2

Installing the Distribution Software

You use VMSINSTAL to install the DECserver 300 distribution software on your VMS load host. VMSINSTAL has the following conventions:

- At the end of each question, either a colon (:) or a question mark (?) appears.

  To answer a question, type your response immediately after the colon or question mark; then press the RETURN key.

- After each question, the default response, if there is one, displays in brackets ([ ]). To respond to a question with the default answer, press only the RETURN key.

- To get help after any question, type a question mark (?). After the help display, the question is repeated.

- If you wish to abort the installation procedure at any time, press CTRL/Y.

  The installation procedure then deletes all files it has created up to that point and returns you to the DCL level. You must invoke VMSINSTAL again to retry the installation procedure.

See the VMS documentation for a complete description of VMSINSTAL.

2.1 Preparing for Installation

Digital Equipment Corporation advises that you establish more than one system as a load host for each terminal server. Alternate hosts free the terminal server from dependence on one particular load host. For each terminal server, Digital suggests a minimum of two load hosts. Digital also recommends one load host for every 10 terminal servers on a network.

This procedure requires the VMS operating system to be installed on the load host.

Perform the following procedure before you install the distribution software on a load host.

1. Determine which systems are the load hosts.

   You must install the distribution software on all systems designated as load hosts. Ask your network manager or the person responsible for assigning load hosts to tell you which are the designated systems.

   When selecting alternate load hosts, you can choose any Digital system for which a DECserver 300 distribution kit is available.

   Note that you do not need a separate software license for each load host, but you do need a separate license for each terminal server.

2. Check for free disk space.

   The DECserver 300 software requires a minimum of 1400 free blocks of disk space during installation, and will use 1300 disk blocks after installation. An additional 2048 free blocks of disk space is required for each up-line dump.

3. Back up the system disk.

2.2 Installing on the Primary Load Host

The software installation procedure takes approximately 5 minutes. To install the terminal server software, follow this procedure:

1. Place the distribution medium on the appropriate device drive. If you are installing from the distribution media rather than from copied save sets, VMSINSTAL prompts you to mount the first volume.

2. Invoke VMSINSTAL and answer the questions.

   Invoking VMSINSTAL.COM requires the appropriate privileges. Refer to the VMS system manager's manual for a list of the necessary privileges.

3. Log in to the system manager account, and enter the following commands:

   ```
   $ @SYS$UPDATE:VMSINSTAL DS3 device-identifier OPTIONS N RET
   ```

   – DS3 is the VMS three-letter facility code for the DECserver 300 product.

   – Device-identifier is the device on which the distribution medium is mounted.

   – OPTIONS N is an optional parameter that indicates you want to be prompted to display or print the *DECserver 300 Release Notes*. If you do not include the OPTIONS N parameter, VMSINSTAL does not prompt you to display or print the Release Notes. You are strongly recommended to read the Release Notes before proceeding with this installation.

   If you are installing on alternate load hosts with copied save sets, the VMSINSTAL command line format differs slightly. See the VMS documentation on VMSINSTAL.

   VMSINSTAL displays the procedure title and the date and time.

   Then VMSINSTAL asks:

   ```
   * Are you satisfied with the backup of your system disk [YES]?
   ```

4. If backup is satisfactory, press the RETURN key to answer YES.

   If you answer NO, the installation procedure terminates. Take appropriate action and go to step 1.

If you are installing from the distribution media rather than from copied save sets, VMSINSTAL prompts you to mount the first volume, which you did at step 1:

```
Please mount the first volume of the set on device-identifier.
* Are you ready?  yes
```

5. Type YES and press the RETURN key. A confirmation message says that the medium is mounted.

   The procedure continues:

```
The following products will be processed:
 DS3 Vn.n

        Beginning installation of DS3 Vn.n at hh:mm

 %VMSINSTAL-I-RESTORE, Restoring product save set A...
```

NOTE

DECserver 300 software version numbers are not specified in this manual. For example, the release notes file is shown as DS3*nnn*.RELEASE_NOTES. Here, *nnn* represents the version number; if you are installing Version 2.0, the release notes file is DS3020.RELEASE_NOTES.

6. Print and/or display the Release Notes (recommended).

   Next, the procedure lists your options for printing and displaying the Release Notes.

```
Release notes included with this kit are always copied to SYS$HELP.

Additional Release Notes Options:

1.  Display release notes
2.  Print release notes
3.  Both 1 and 2
4.  None of the above

* Select option [2]:
```

Select one of these options. Digital recommends that you select option 2.

- If you select option 1, you see:

  ```
  VMI$ROOT:[SYSUPD.DS3nnn]DS3nnn.RELEASE_NOTES;1
  ```

  The Release Notes immediately start scrolling at your terminal. The Release Notes might contain up to 30 screens.

- If you select option 2, VMSINSTAL asks you which queue you want to send the file to for printing:

  ```
  * Queue name [SYS$PRINT]:
  ```

  Press the RETURN key to print the Release Notes on the default printer or specify another print queue. A message indicates that the system has queued the file.

- If you select option 3, VMSINSTAL first asks you which queue you want to send the file to for printing:

  ```
  * Queue name [SYS$PRINT]:
  ```

  Press the RETURN key to print the Release Notes on the default printer or specify another print queue. A message indicates that the system has queued the file for printing.

  Next, VMSINSTAL displays the following:

  ```
  VMI$ROOT:[SYSUPD.DS3nnn]DS3nnn.RELEASE_NOTES;1
  ```

  Then the Release Notes immediately start scrolling at your terminal.

  After the system queue message and the Release Notes are displayed (if you selected one of the display options), the procedure continues by asking:

  ```
  * Do you want to continue the installation [NO]?
  ```

7. Press the RETURN key to stop the procedure and review the Release Notes, if you have not read them.

   Check for any changes that can affect this installation. (VMSINSTAL places the release notes file, DS3*nnn*.RELEASE_NOTES, in the SYS$HELP directory.)

   Check to see if you have to install any additional software from the distribution media. If so, install those distribution files.

8. Restart VMSINSTAL if you stopped to read the Release Notes.

   If you discontinued the installation procedure at the end of step 7, then enter this form of the VMSINSTAL command to restart the procedure:

   ```
   $ @VMSINSTAL DS3 device-identifier RET
   ```

   After typing this command, you must answer the VMSINSTAL questions.

9. Initiate the Installation Verification Procedure (IVP) (recommended).

   After the Release Notes option menu, the procedure continues:

   ```
   The following products will be processed:
       DS3 Vn.n

           Beginning installation of DS3 Vn.n at hh:mm

   %VMSINSTAL-I-RESTORE, Restoring product save set A...
   %VMSINSTAL-I-RELMOVED, The product's release notes have been moved to
   SYS$HELP.
   * Do you want to run the IVP after the installation [YES]? RET

   %VMSINSTAL-I-RESTORE, Restoring product save set B...
   %VMSINSTAL-I-SYSDIR, This product creates system directory [DECSERVER].
   ```

   The installation verification procedure (IVP) verifies that the DECSERVER directory exists, that all the files from the distribution kit are in the directory, and that the release notes are in the SYS$HELP directory. Digital recommends that you press the RETURN key to initiate the IVP.

10. Read the messages and exit VMSINSTAL.

    If you are on a VAXcluster node, the following message displays:

    ```
    If you intend to execute this layered product on other nodes in your
    VAXcluster, and you have the appropriate software license, you must
    prepare the system-specific roots on the other nodes by issuing the
    following command on each node (using a suitably privileged account):

    $  CREATE/DIRECTORY  SYS$SPECIFIC:[DECSERVER]/PROTECTION=(S:RWED,O:RWED,
       G:WER,W)
    ```

    VMSINSTAL continues, as follows, for both single and VAXcluster nodes.

```
Your installation is now complete. After exiting from VMSINSTAL:

1.  Edit your system start-up file so that it defines the logical
MOM$LOAD as a search string with a value equal to the current search
string, plus the added element SYS$SYSROOT:[DECSERVER]. For example:

DEFINE/SYSTEM/EXEC/NAME_ATTRIBUTE=NO_ALIAS/NOLOG -
MOM$LOAD 'current-search-string',SYS$SYSROOT:[DECSERVER]

If the current search string associated with MOM$LOAD in your start-up
file is SYS$SYSROOT:[DECSERVER] or if you have already made this change
for a previous installation, there is no need to edit this file.

This command ensures that the location of the server image is defined
each time the system is rebooted, necessary for successful down-line
loading.

2.  Configure the server into your host's database. Execute a command
procedure called DSVCONFIG.COM. This command procedure is in the
SYS$SYSROOT:[DECSERVER] directory. If you have already executed this
procedure from previous installations, you need to configure only any
additional units. All previously defined units will still be confi-
gured.

3.  The Installation Verification Procedure (IVP) for the DECserver 300
can be found in SYS$TEST and may be run at any time by executing the
command procedure DS3$IVP.COM.
```

You have finished the first part of the installation. The procedure continues as follows:

NOTE

If you are installing files onto a VAXcluster node, the messages indicate that the files are copied to the SYS$COMMON:[DECSERVER] directory, instead of SYS$SYSROOT:[DECSERVER].

```
%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target directo-
ries...

Beginning installation verification procedure for DECserver 300 Vn.n.

Installation verification procedure for DECserver 300 Vn.n successful.

Installation of DS3 Vn.n completed at hh:mm
```

NOTE

The Terminal Server Manager (TSM) files are used only if you have the TSM software.

The procedure concludes:

```
VMSINSTAL procedure done at hh:mm
```

Proceed to Section 2.3 if you need to edit your system start-up file. If you do not need to edit your system start-up file, you can either proceed to Section 2.4 to install the distribution software onto an alternate load host or to Section 2.5 to finish the VMSINSTAL installation procedure.

Example 2–1 shows a successful installation procedure onto a VMS system. This example also shows the procedure as Digital Equipment Corporation suggests you run it.

Example 2–1: Sample Software Installation

```
$ @SYS$UPDATE:VMSINSTAL DS3 MTA2 OPTIONS N RET

VAX/VMS Software Product Installation Procedure Vn.n

It is 11-APR-1991 at 14:08.
Enter a question mark (?) at any time for help.

* Are you satisfied with the backup of your system disk [YES]? RET
Please mount the first volume of the set on MTA2:.
* Are you ready? Y RET
%MOUNT-I-MOUNTED, DS3 mounted on _MTA2:

The following products will be processed:
DS3 Vn.n

Beginning installation of DS3 Vn.n at 14:08

%VMSINSTAL-I-RESTORE, Restoring product save set A...

Release notes included with this kit are always copied to SYS$HELP.

Additional Release Notes Options:

1.  Display release notes
2.  Print release notes
3.  Both 1 and 2
4.  None of the above

* Select option [2]: 2 RET
* Queue name [SYS$PRINT]: RET
Job DS3010.RELEASE_NOTES (queue SYS$PRINT, entry 314) started on SYS$PRINT
* Do you want to continue the installation [NO]? RET

VMSINSTAL procedure done at 14:09

$
```

```
$ @SYS$UPDATE:VMSINSTAL DS3 MTA2 RET

VAX/VMS Software Product Installation Procedure Vn.n

It is 11-APR-1991 at 14:25.
Enter a question mark (?) at any time for help.

* Are you satisfied with the backup of your system disk [YES]? RET
Please mount the first volume of the set on MTA2:.
* Are you ready? Y RET
%MOUNT-I-MOUNTED, DS3 mounted on  MTA2:

The following products will be processed:
DS3 Vn.n

Beginning installation of DS3 Vn.n at 14:27

%VMSINSTAL-I-RESTORE, Restoring product save set A...
%VMSINSTAL-I-RELMOVED, The product's release notes have been
moved to SYS$HELP.
* Do you want to run the IVP after the installation [YES]? RET
%VMSINSTAL-I-RESTORE, Restoring product save set B...
%VMSINSTAL-I-SYSDIR, This product creates a system directory [DECSERVER]


If you intend to execute this layered product on other nodes in your VAX-
cluster, and you have the appropriate software license, you must prepare
the system-specific roots on the other nodes by issuing the following com-
mand on each node (using a suitably privileged account):

$ CREATE/DIRECTORY SYS$SPECIFIC:[DECSERVER]/PROTECTION=(S:RWED,O:RWED,
   G:WER,W)

Your installation is now complete.  After exiting from VMSINSTAL:

1.  Edit your system start-up file so that it defines the logical
MOM$LOAD as a search string with a value equal to the current search
string, plus the added element SYS$SYSROOT:[DECSERVER]. For example:

DEFINE/SYSTEM/EXEC/NAME_ATTRIBUTE=NO_ALIAS/NOLOG -
MOM$LOAD 'current-search-string',SYS$SYSROOT:[DECSERVER]

If the current search string associated with MOM$LOAD in your
start-up file is SYS$SYSROOT:[DECSERVER] or if you have
already made this change for a previous installation, there
is no need to edit this file.

This command ensures that the location of the server image is defined each
time the system is rebooted, necessary for successful down-line loading.

2.  Configure the server into your host's database.
Execute a command procedure called DSVCONFIG.COM. This
command procedure is in the SYS$SYSROOT:[DECSERVER] directory.
If you have already executed this procedure from previous
installations, you need to configure only any additional units.
All previously defined units will still be configured.
```

```
3.  The Installation Verification Procedure (IVP) for the DECserver 300
can be found in SYS$TEST and may be run at any time by executing
the command procedure DS3$IVP.COM.

%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target directo-
ries...

Beginning installation verification procedure for DECserver 300 Vn.n.

Installation verification procedure for DECserver 300 Vn.n successful.

Installation of DS3 Vn.n completed at 14:30

VMSINSTAL procedure done at 14:30

$
```

2.3 Editing Your System Start-Up File

MOM$LOAD is a logical name that your load host uses to find the image file of any product that must be down-line loaded. For each product, MOM$LOAD has an associated equivalence string that specifies the location of the product's image file. Thus, the following command line equates the logical name MOM$LOAD to the location of your DECserver 300 image file:

DEFINE/SYSTEM/EXEC/NAME_ATTRIBUTE=NO_ALIAS/NOLOG -
MOM$LOAD SYS$SYSROOT:[DECSERVER]

If your system is a load host for several products, then the location of each image file must be defined by a list of equivalent strings. For example, the following command line defines the location of other Ethernet product image files as well as the DECserver 300 image file:

DEFINE/SYSTEM/EXEC/NAME_ATTRIBUTE=NO_ALIAS/NOLOG -
MOM$LOAD SYS$SYSROOT:[MOM$SYSTEM], SYS$SYSROOT:[DECSERVER]

Two or more equivalence strings make up a search list. When your VMS system is requested to down-line load a product, it looks through the search list until it finds the location of the product's image file.

Your host cannot down-line load the DECserver 300 image file unless the search list defined for MOM$LOAD has the correct location of the image file. To see what the current search string is for MOM$LOAD, use the DCL SHOW LOGICAL command:

```
$ SHOW LOGICAL MOM$LOAD  RET
```

If SYS$SYSROOT:[DECSERVER] is defined for MOM$LOAD, you do not have to define MOM$LOAD. Define MOM$LOAD only if:

- No equivalence string exists for MOM$LOAD:

  The SHOW LOGICAL command results with the message "`No translation for logical name MOM$LOAD`"

- The equivalence strings defined for MOM$LOAD do not include SYS$SYSROOT:[DECSERVER].

If MOM$LOAD is already defined for other products but not for the DECserver 300 product, you must define MOM$LOAD by specifying SYS$SYSROOT:[DECSERVER] along with the current directory definitions, as shown in the VMSINSTAL example. If you specify only SYS$SYSROOT:[DECSERVER] for MOM$LOAD excluding the current directory definitions, then SYS$SYSROOT:[DECSERVER] will replace the current directory definition. Your VMS system will not be able to load the image files located by the current directory definition.

Proceed to Section 2.4 to install the distribution software on an alternate load host or proceed to Section 2.5 to finish the VMSINSTAL procedure.

2.4 Installing on Alternate Load Hosts

Digital recommends that you establish alternate load hosts for each server. Alternates free the server from dependence on one load host, because an alternate load host can perform a down-line load if the original load host is unavailable. In addition, alternate load hosts can receive up-line dumps from servers.

Regarding the assignment of load hosts, Digital suggests both the following:

- At least one other load host as a backup to the original for each server
- At least one load host for every 10 servers

As with the original load host, an alternate VMS load host must:

- Be running the DECnet Phase IV protocol
- Have an Ethernet controller on the same Ethernet as the server
- Have the distribution software installed
- Have DECserver 300 entries in its server configuration database DSVCONFIG.DAT, the DECnet operational database, and the DECnet permanent database

2.4.1 Installing on Single Systems

To install the server distribution software onto an alternate VMS load host that is not a member of a VAXcluster, use one of these two methods:

- Place your distribution media on the appropriate device of the new load host, and repeat the installation procedure detailed in Section 2.2.

- Follow this procedure:

  1. Type the following command on the original load host:

     ```
     $ @VMSINSTAL DS3 device-identifier OPTIONS G SYS$UPDATE: RET
     ```

     In this case, option G gets the save sets and stores them in the SYS$UPDATE directory.

  2. Copy the save sets from the original load host to the alternate load host's SYS$UPDATE directory. The save sets are DS3*nnn*.A and DS3*nnn*.B.

     Here, *nnn* equals the version number of the DECserver 300 software (for example, *nnn* equals 020 for V2.0).

  3. Run VMSINSTAL on the alternate load host.

     ```
     $ @VMSINSTAL DS3 SYS$UPDATE: RET
     ```

2.4.2 Installing on Other Operating Systems

To install the DECserver 300 distribution software on an operating system other than VMS, follow the instructions in the DECserver 300 software installation manual for that system. The appropriate installation manual is included with the documentation kit that comes with the software distribution kit for that operating system.

2.5 After Exiting VMSINSTAL

After you exit VMSINSTAL, follow these steps:

1. Check the *DECserver 300 Release Notes* to see if you have to install any additional software from the distribution media. If so, install those distribution files.

2. Give the *DECserver 300 Release Notes* to the person who will manage the terminal server.

3. Go to Chapter 3 to configure the load host's node database.

3

Configuring the Load Host's Node Database

This chapter provides a step-by-step procedure for configuring a VMS load host's node database for new terminal servers with an automated procedure called DSVCONFIG. Configuring this database is part of the software installation. After this procedure, your VMS system is established as a valid load host for the new terminal servers. Figure 1-1 provides an overview of the installation process.

If you ran the installation procedure described in Chapter 2, DSVCONFIG.COM is now in the SYS$SYSROOT:[DECSERVER] directory for single systems and in SYS$COMMON:[DECSERVER] for VAXcluster members. The load host creates and maintains all terminal server-related files in this directory.

NOTE

DSVCONFIG.COM accommodates such products as the DECserver 200, DECserver 300, and DECserver 500. However, some previous releases of DSVCONFIG.COM do not accommodate all the DECserver products. Therefore, use the command file on this kit for all configurations.

DSVCONFIG has the following conventions and requirements:

- To select an option, type a menu number and press the RETURN key.
- To answer a question, type your response immediately after the colon or question mark, and press the RETURN key.

- After each question, the default response, if there is one, displays in brackets ([ ]). To respond to a question with the default answer, press only the RETURN key.
- To get help after any question, type a question mark (?). After the help display, the question is repeated.
- To exit an option without making any changes, type CRTL/Z. You are returned to the DSVCONFIG Menu.
- To exit DSVCONFIG at the menu level, type CTRL/Z. You are returned to the DCL prompt.
- When you finish an option, DSVCONFIG automatically returns you to the DSVCONFIG Menu.

3.1 Preparing for Configuration

Perform the following to prepare for configuring the load host's node database:

1. Check that DECnet Phase IV is installed and running.

   For information about DECnet Phase IV, see the VMS *DECnet-VAX System Manager's Guide*.

2. Check that all distribution software was installed in these directories:

   – SYS$SYSROOT:[DECSERVER] for single systems

   – SYS$COMMON:[DECSERVER] for VAXclusters

     Appendix A lists the distribution files.

3. Locate the terminal server Identification Card.

   Ask the hardware installer for the *DECserver 300 Identification Card* for each new DECserver 300 terminal server. The network manager and the hardware installer recorded the terminal server's DECnet node name and node address as well as the Ethernet address on this card. You need to know this information to answer prompts during DSVCONFIG.

   If your DECnet network is divided into areas, each DECnet node address takes the form *aa.nnnn*. Here, *aa* is a decimal area number from 2 to 63, *nnnn* is the node address, and the period distinguishes an area from address. For example, 17.1003 is a valid node address.

   Each DECnet node name must have from 1 to 6 alphanumeric characters with at least one character being an alphabetic character. For example, DSV5 and LION77 are valid DECnet node names.

   Each DECserver 300 terminal server is delivered with a unique Ethernet hardware address. This address is six pairs of hexadecimal digits with a hyphen (-) separating each pair. For example, 08-00-01-00-AB-CD is an address with a valid format. The Ethernet address is on the control/indicator panel of the DECserver 300 terminal server.

3.2 Configuring on the Load Host

Perform the following procedure to configure the load host's node database. The load host can be a single system or a VAXcluster node.

CAUTION

Do not execute any DECnet commands that are a part of DSVCONFIG separate from the following DSVCONFIG procedure; otherwise, DECnet databases could be changed without changing DSVCONFIG.DAT, causing a synchronization problem.

NOTE

You need OPER and SYSPRV privileges to configure the load host's node database.

1. Check that each new terminal server DECnet node name and node address is unique by specifying the address or name:

   ```
   $ MCR NCP RET
   NCP> SHOW NODE node-name CHARACTERISTICS RET
   ```

   or

   ```
   $ MCR NCP RET
   NCP> SHOW NODE node-number CHARACTERISTICS RET
   ```

   If NCP shows a node already defined, see the network manager to resolve the conflict in names.

2. If you do not know the load host's service circuit-ID, use the following command:

   ```
   NCP> SHOW ACTIVE CIRCUIT CHARACTERISTICS
   ```

3. Invoke DSVCONFIG.

   Log in to the system account or any account with OPER and SYSPRV privileges.

NOTE

DSVCONFIG assumes you have defined MOM$LOAD to locate the DECserver 300 software image in SYS$SYSROOT:[DECSERVER] (Section 2.2).

DSVCONFIG starts with these actions:

- It determines whether the DECnet key is installed. If DECnet is missing, DSVCONFIG prints a message and exits. You must have DECnet to run this procedure because DSVCONFIG executes DECnet commands.
- It checks the existence and format of a data file called DSVCONFIG.DAT. It finds one of three possible situations and continues accordingly:
  - The DSVCONFIG.DAT file does not exist in SYS$SYSROOT:[DECSERVER]. The procedure creates DSVCONFIG.DAT and displays a message telling you that the file was not found and a new one was created.
  - SYS$SYSROOT:[DECSERVER] already has this file formatted correctly, if DSVCONFIG was previously used to add DECserver 300 entries. The procedure continues with its next task.
  - SYS$SYSROOT:[DECSERVER] or for VAXclusters, SYS$SPECIFIC:[DECSERVER] already has this file, but not in the correct format. The procedure reformats the file.

    For VAXclusters, SYS$SPECIFIC:[DECSERVER] on each VAXcluster node might have an older version of the DSVCONFIG.DAT file. In this case, the DSVCONFIG procedure copies the terminal server entries from that data file into the DSVCONFIG.DAT file on the SYS$COMMON:[DECSERVER], a directory shared by the VAXcluster nodes. The procedure renames the DSVCONFIG.DAT file in SYS$SPECIFIC so that the DSVCONFIG.DAT file in SYS$COMMON is used thereafter.
- It informs you that each DECserver terminal server must have a unique DECnet node name and DECnet node address.
- It asks you to either continue or to exit:

  ```
  Press <RET> to start, or <CTRL/Z> to exit...
  ```

4. Press the RETURN key to see the DSVCONFIG options menu.

   DSVCONFIG displays:

```
$ SET DEFAULT MOM$LOAD: RET
$ @DSVCONFIG RET

DECserver Configuration Procedure

Version: Vn.n

Menu of Options
1 - List known DECservers
2 - Add a DECserver
3 - Swap an existing DECserver
4 - Delete an existing DECserver
5 - Restore existing DECservers
CTRL/Z - Exit from this procedure

Your selection?
```

5. Choose your configuration option, type the number, and press the RETURN key.

   Sections 3.2.1 and 3.2.2 explain the List and Add options in detail. Options 3, 4, and 5 are discussed in *DECserver 300 Management*.

3.2.1 List Known DECservers (Option 1)

Select option 1 to list the DECserver terminal servers in the DSVCONFIG.DAT data file. Type number 1 and press the RETURN key. The contents of the DSVCONFIG.DAT file are listed in seven columns (Example 3–1).

Example 3–1: List Known DECservers

```
DECnet  DECnet Server Service
Address Name   Type   Circuit Ethernet Address  Load File     Dump File
------- ------ ------ ------- ----------------- ------------- -------------
28.900  BUNNY  DS200  BNA-0   08-00-2B-02-F0-99 PR0801ENG.SYS DS2BUNNY.DMP
28.1001 BACH   DS300  UNA-0   08-00-2B-02-24-CC SH1601ENG.SYS DS3BACH.DMP
28.1002 BEETHO DS300  UNA-0   08-00-2B-03-AA-2B SH1601ENG.SYS DS3BEETHO.DMP
28.1003 MOZART DS100  UNA-0   08-00-2B-02-24-DD PS0801ENG.SYS PSDMP24DD.SYS
28.1005 HAYDN  DS300  UNA-1   08-00-2B-03-AA-F1 SH1601ENG.SYS DS3HAYDN.DMP
28.1019 OCELOT DS500  UNA-0   08-00-2B-03-EE-FF DS5OCELOT.SYS DS5OCELOT.SYS
28.1022 JAGUAR DS500  UNA-0   08-00-2B-03-E1-F1 DS5JAGUAR.SYS DS5JAGUAR.SYS
28.1023 DRMCRP DS100  UNA-0   08-00-2B-02-24-2D PS0801ENG.SYS PSDMP242D.SYS

Total of 8 DECservers defined.

(Press RETURN for menu)
```

3.2.2 Add a DECserver (Option 2)

Select option 2 to add an entry for a new terminal server in the terminal server configuration database DSVCONFIG.DAT, the DECnet operational database, and the DECnet permanent database. You will need the *DECserver 300 Identification Card*.

To add a terminal server, follow these steps:

1. Type 2 and press the RETURN key.

   DSVCONFIG asks:

   ```
   DECserver type?
   ```

2. Type DS300 and press the RETURN key.

   DSVCONFIG asks:

   ```
   DECnet node name for unit?
   ```

3. Specify the DECnet node name for the new terminal server.

   DSVCONFIG asks:

   ```
   DECnet node address for unit?
   ```

4. Specify the DECnet node address for the new terminal server. If you specify a node address that is already defined in DSVCONFIG.DAT, you get a DSVCONFIG error, nothing is added, and the Add option is terminated.

   DSVCONFIG asks:

   ```
   Ethernet address of unit?
   ```

5. Specify the Ethernet address of the new terminal server.

   DSVCONFIG asks:

   `DECnet Service Circuit-ID [`*`default-id`*`]?`

6. Press the RETURN key if the default ID is the load host's service circuit.

   If not, specify the service circuit-ID of the load host's Ethernet controller. The following lists the different service circuit-IDs:

   UNA-*n*
   QNA-*n*
   BNA-*n*
   SVA-*n*
   n is an integer (typically 0 or 1).

See *DECserver 300 Management* for a discussion of service circuits.

DSVCONFIG adds the entry for the new terminal server to the databases and sets SERVICE ENABLED on the specified service circuit, both of which are necessary for down-line loading.

At the end of the Add option, you might get network control program (NCP) messages (information, confirmations, and errors). In the case of error messages, the operation might not have been successful. For the explanations of these messages, see the *VMS System Messages* manual.

CAUTION

If you get an error from DECnet while you are adding a terminal server, the entry is added to the DSVCONFIG.DAT file even though it is not entered in the DECnet databases. To correct this synchronization problem, follow these steps:

1. Use option 4 to delete the entry. (Refer to *DECserver 300 Management*.)
2. Fix the condition causing the DECnet error.
3. Return to option 2 to add the terminal server again with the correct information.

Example 3–2 adds a new DECserver 300 terminal server named BEETHO.

If you use the List option to get a listing of terminal servers, you see that BEETHO appears on the listing of entries.

Example 3–2: Adding a DECserver

```
Your selection? 2 RET

Type a ? at any time for help on a question.
Type CTRL/Z for any question to return to the menu without adding the unit.

DECserver type? DS300 RET
DECnet node name for unit? BEETHO RET
DECnet node address for unit? 28.1002 RET
Ethernet address of unit? 08-00-2B-03-AA-2B RET
DECnet Service Circuit-ID? [UNA-0] RET

If you get an error message now, the new unit will not be added,
and you should delete it from the directory.
```

3.3 Verifying a Merge on VAXcluster Nodes

The DSVCONFIG procedure looks at each entry in SYS$SPECIFIC and determines if that entry is already in SYS$COMMON.

- If the entry is in SYS$COMMON, it is not merged.
- If the entry is not in SYS$COMMON, it is merged.

In the case of a merge DSVCONFIG renames the old DSVCONFIG.DAT file on the SYS$SPECIFIC directory to DSVCONFIG_SPECIFIC.DAT. As a result, you still have the original entries in case you need to repeat the merge.

The following DSVCONFIG messages appear if a merge occurs:

```
Merging SYS$SPECIFIC:[DECSERVER]DSVCONFIG into
SYS$COMMON:[DECSERVER]DSVCONFIG

8 servers were defined in SYS$SPECIFIC:[DECSERVER]DSVCONFIG.DAT
3 servers were already in SYS$COMMON:[DECSERVER]DSVCONFIG.DAT
5 servers merged into SYS$COMMON:[DECSERVER]DSVCONFIG.DAT

You must assign a unique DECnet node  name  and  DECnet  node address for
each new DECserver unit.

Press <RET> to start, or <CTRL/Z> to exit...
```

If a merge occurs, follow this procedure to ensure that DSVCONFIG updates the DSVCONFIG.DAT file correctly and places it in the SYS$COMMON directory:

1. Select the List option to verify that the merge was successful.

   The List option should display the correct service circuit-IDs at each node. Informational messages display the status of the merge as it progresses.

2. Verify that the service circuit-ID is correct.

   Because the individual nodes have the correct service circuit-ID for each terminal server entry, the correct IDs are merged into the new file.

   If the service circuit IDs are not correct for a particular node, you can correct them in one of two ways:

   - You can run DSVCONFIG SET_CIRCUIT at that node (for VAX-clusters, this method is better). The following shows an example of the command you would use:

     ```
     $ @DSVCONFIG SET_CIRCUIT UNA-0
     ```

   - You can run DSVCONFIG at the node with the errors and use the Swap option to change the service circuit-IDs.

3.4 Exiting DSVCONFIG

When you exit DSVCONFIG:

1. Give the network manager the *DECserver 300 Identification Card* for each terminal server that you defined.
2. Ask the network manager to store the card with the documentation for the DECserver 300 software.
3. Proceed to Chapter 4 to verify the load host and server system installation.

4

Verifying the Installation

To complete the software installation, you need to perform two verifications. First, you verify the load host installation by down-line loading the terminal server image. After loading the terminal server, you verify the terminal server system installation. Here, system installation means the installation of the complete terminal server system — the hardware with the correct software loaded and running. You verify the terminal server system by testing a few terminal server commands at an interactive terminal, which must be connected to the terminal server.

4.1 Verifying the Load Host Installation

To verify the installation of the load host, use it to down-line load the terminal server image to one DECserver 300 terminal server; then read the DECnet event-logging messages. The messages confirm that the new load host:

- Has the appropriate files in the correct directory.
- Has a correct entry in its node database for the terminal server.
- Can successfully down-line load the terminal server image to the terminal server.

The DECserver 300 down-line loading procedure does not let you specify which load host loads a terminal server. The terminal server sends a DECnet message requesting a down-line load to all load hosts. The first load host to "volunteer" is the host that does the loading.

CAUTION

> Make sure that the verification terminal server is configured only on load hosts that have the latest terminal server software. If the verification terminal server remains configured on any host with an older version of the terminal server software, that load host might be the node that down-line loads the terminal server.

To find out if a load host has the target terminal server listed, execute the LIST option of the DSVCONFIG (Section 3.3).

The terminal server image is down-line loaded to the terminal server when you initialize the terminal server. You initialize the terminal server by powering up the hardware unit or with the terminal server INITIALIZE command. *DECserver 300 Management* has details about initializing the terminal server.

Example 4–1, presented in six parts (A–F), shows the installation verification for a VMS load host. This procedure tests that your VMS system can perform successfully as a down-line load host for a particular terminal server.

In this example, the VMS system is named SYSTEM. The terminal server that is loaded is a DECserver 300 terminal server with DECnet node name BEETHO. BEETHO is an existing terminal server currently operating on the network. This example assumes that the down-line load is performed during normal working hours and that terminal server users are warned of the upcoming down-line load by way of RCF.

Example 4–1: Verifying the Load Host Installation

A. Using RCF and Warning Terminal Server Users

This example uses the terminal server's default log-in password, ACCESS.

```
$ MCR NCP CONNECT NODE BEETHO SERVICE PASSWORD FF23 RET
Console connected (press CTRL/D when finished) RET

# ACCESS RET  (not echoed)
DECserver 300 Terminal Server V1.0 (BLn.n) - LAT Vn.n

Please type HELP if you need assistance

Enter username>  SWINSTALLER RET
```

```
Local> SET PRIVILEGED [RET]
Password> password (not echoed) [RET]
Local> BROADCAST ALL "The terminal server will be reloaded in 3 minutes."
[RET]

Local> [CTRL/D]
```

B. Enabling DECnet Event Logging and Checking Terminal Server Names

```
NCP> SET LOGGING CONSOLE EVENT 0.3,7 [RET]
NCP> SET LOGGING CONSOLE STATE ON [RET]
NCP> SET LOGGING MONITOR STATE ON [RET]
NCP> EXIT [RET]

$ SET DEFAULT MOM$LOAD [RET]
$ @DSVCONFIG [RET]

You must assign a unique DECnet node name and DECnet node address
for each DECserver you are going to configure.

Press <RET> to start, or <CTRL/Z> to exit... [RET]

DECserver Configuration Procedure

Version: V1.8

Menu of Options
1 - List known DECservers
2 - Add a DECserver
3 - Swap an existing DECserver
4 - Delete an existing DECserver
5 - Restore existing DECservers
CTRL/Z - Exit from this procedure

Your selection? 1 [RET]

DECnet  DECnet Server Service
Address Name   Type   Circuit Ethernet Address  Load File     Dump File
------- ------ ------ ------- ----------------- ------------- -------------

28.1002 BEETHO DS300  UNA-0   08-00-2B-03-AA-2B SH1601ENG.SYS DS3BEETHO.DMP

Total of 1 DECserver defined.

DECserver Configuration Procedure

Version: V1.8

Menu of Options
1 - List known DECservers
2 - Add a DECserver
3 - Swap an existing DECserver
4 - Delete an existing DECserver
5 - Restore existing DECservers
```

```
CTRL/Z - Exit from this procedure

Your selection? CTRL/Z
```

C. Down-Line Loading with the LOAD Command

```
$ MCR NCP LOAD NODE BEETHO PASSWORD FF23 RET
```

D. DECnet Event-Logging Display After Issuing LOAD

```
NCP> LOAD NODE BEETHO SERVICE PASSWORD FF23 RET
DECnet event 0.3, automatic line service
From node 4.205 (SYSTEM), 18-JUN-1989 01:35:20.47
Circuit UNA-0, Load, Requested, Node = 28.1002 (BEETHO)
File = MOM$LOAD:SH1601ENG, Operating system Ethernet address =
08-00-2B-03-AA-2B

DECnet event 0.3, automatic line service
From node 4.205 (SYSTEM), 18-JUN-1989 01:43:21.14
Circuit UNA-0, Load, Successful, Node = 28.1002 (BEETHO)
File = MOM$LOAD:SH1601ENG, Operating system Ethernet address =
08-00-2B-03-AA-2B
```

E. Checking the Service Circuit

This part is optional and is presented in case the service circuit becomes disabled. Type the following command to verify that the service circuit, BNA-0, is enabled:

```
NCP> SHOW CIR BNA-0 CHARACTERISTICS RET

Circuit Volatile Characteristics as of 11-Apr-90 08:23:45

Circuit = BNA-0

State                     =on
Service                   =disabled
Designated router         = 4.378 (LKGRT3)
Cost                      =4
Router priority           =64
Hello timer               =15
Type                      =Ethernet
Adjacent node             = 4.378 (LKGRT3)
Listen timer              =90

NCP>
```

If the state is off, first check that there are no users or applications on the system by typing the following command:

```
NCP> SHOW KNOWN LINKS RET

Known Link Volatile Summary as of 11-Apr-90 08:25:23

Link     Node            PID     Process     Remote Link  Remote User

33848  2.632 (JOEDEV)  24203120  MCGREGOR          34655  MAIL
8615   3.118 (JOYCE)   2420372C  POOR                309  CTERM
34154  4.54  (SMAUG)   24203F2B  MAIL_34154        33388  DECNET_MAIL
NCP>
```

The example shows that there are three users. If you enable the circuit at this time, you will disable the current users.

If the circuit is not busy, type the following commands to enable service circuit, BNA-0.

```
NCP> SET CIR BNA-0 STATE OFF RET
NCP> SET CIR BNA-0 SERVICE ENABLED RET
NCP> SET CIR BNA-0 STATE ON RET
```

F. Conclusion of a Load Host Installation Verification

```
NCP> CLEAR LOGGING CONSOLE EVENT 0.3,7 RET
NCP> EXIT RET
$
```

4.2 Verifying the Terminal Server System Installation

To verify the total terminal server system installation, test a few terminal server commands at an interactive terminal connected to a terminal server port. This step confirms that:

- The correct version of the software is in the terminal server.
- The terminal server hardware operates with the new software.
- The new software is running successfully.

To verify the terminal server system installation, follow this sequence:

1. Press the RETURN key two or more times.

   The following message and prompt should appear:

   ```
   RET
   RET
   DECserver 300 Terminal Server Vn.n (BLn.n) - LAT Vn.n
   Please type HELP if you need assistance
   Enter username>
   ```

2. Read the identification message to ensure that the correct version (V*n.n*) of the terminal server image was down-line loaded.

   If you fail to receive this display, the problem could be:

   – With the terminal (if the display does not appear)

   – With the load host

   – That incorrect software was down-line loaded

3. Enter your user name (any string of 1 through 16 characters that identifies you) and press the RETURN key.

   The port should now enter local mode, where the local prompt appears:

   ```
   Enter username> SWINSTALLER RET
   Local>
   ```

4. Use the following terminal server command to see which load host down-line loaded the terminal server software:

   ```
   Local> SHOW SERVER STATUS RET
   ```

   The Load Address field in the display tells you which host loaded the terminal server.

   If that load host does not have the current terminal server software, either install the current terminal server software on the host or delete the verification terminal server from its load host node database. See Chapter 2 for installing the software.

5. Use the TEST PORT command, which verifies whether the terminal is receiving valid character data.

   On the command line, specify the number of lines and the number of columns you would like displayed. For example, this command line displays 5 lines of 80 characters each:

   ```
   Local> TEST PORT COUNT 5 WIDTH 80 RET
   ```

   Note that you can interrupt this test by pressing any key.

6. Issue the SHOW PORT command to display the characteristics of your port and their values:

   ```
   Local> SHOW PORT RET
   ```

   A port-characteristics display should appear.

7. Log out the terminal from the terminal server:

   ```
   Local> LOGOUT RET
   ```

If the terminal server system verification encounters any problem, see the network manager.

If you complete these steps successfully, the test terminal server is operating correctly, and you can report the successful load host installation and terminal server system installation to the network manager.

If this installation is a software upgrade, either you or the network manager can now reload all existing terminal servers.

Example 4–2 shows the verification of a terminal server system installation. This procedure tests the hardware, the correctness of the software version, and the ability of the new software to run successfully.

Examples 4–2 and 4–3 assume that you are at a terminal connected to the terminal server's Port 1, that your username is SWINSTALLER, that your user password is SQUIDS, that you will test the terminal server by connecting to your own VMS system, SYSTEM, and that the new DECserver 300 software is Version 2.0.

Example 4–2: Verifying the Terminal Server System Installation

```
RET

RET

DECserver 300 Terminal Server V2.0 (BLn.n) - LAT Vn.n

Please type HELP if you need assistance

Enter username>  SWINSTALLER RET

Local> TEST PORT COUNT 5 WIDTH 65 RET

!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`a
"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`ab
#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abc
$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcd

Local> SHOW PORT RET
```

The display at the port of a new DECserver 300 terminal server should match Example 4–3, which contains the factory-set values, except for the port number, user name, and terminal server name.

Example 4–3: Displaying Port Characteristics

```
Port 1:  SWINSTALLER           Server: LAT_08002B03AA2B

Character Size:         8      Input Speed:        9600
Flow control:         XON      Output Speed:       9600
Parity:              None      Modem Control:  Disabled

Access:             Local      Local Switch:       None
Backward Switch:     None      Name:             PORT_1
Break:              Local      Session Limit:         4
Forward Switch:      None      Type:               Ansi
Default Protocol:     LAT

Authorized Groups:   0
(Current)  Groups:   0

Enabled Characteristics:

Autobaud, Autoprompt, Broadcast, Input Flow Control, Loss Notification,
Message Codes, Output Flow Control, Verification

Local> LOGOUT RET
Local -020- Logged out port 1 on server LAT_08002B03AA2B
```

A

DECserver 300 Distribution Files

Table A–1: DECserver 300 Distribution Files

File Name	Description
SYS$TEST:DS3$IVP.COM	Installation verification procedure.
The following files are located in SYS$SYSROOT: or SYS$SPECIFIC:[DECSERVER]	
DSVCONFIG.COM	Configuration procedure.
DSVCONFIG.DAT	Data file used by DSVCONFIG.COM.
DS3_*nnn*_DEFAULTS.COM	File used by the Terminal Server Manager (TSM) software.
DS3_020_CRASH_DISPLAY.COM	Crash dump identification procedure.
DS3*nnn*.RELEASE_NOTES	Release notes. (*nnn*=version number)
SH1601ENG.SYS	DECserver 300 software image.
TSM$DS3_*nnn*_ADD_LOCAL_SERVICE.COM	File used by the TSM software.
TSM$DS3_*nnn*_DEDIC_SERV_PRINTER.COM	File used by the TSM software.
TSM$DS3_*nnn*_DEDIC_SERV_TERM.COM	File used by the TSM software.
TSM$DS3_*nnn*_DSR_DTR_TERM.COM	File used by the TSM software.
TSM$DS3_*nnn*_GET_CHAR.COM	File used by the TSM software.
TSM$DS3_*nnn*_HOST_INIT_PRINTER.COM	File used by the TSM software.
TSM$DS3_*nnn*_PC_TERM_OR_SERV.COM	File used by the TSM software.
TSM$DS3_*nnn*_PORT_DEFAULT.COM	File used by the TSM software.

B

Using the Remote Console Facility

The DECserver 300 terminal server supports the VMS Remote Console Facility (RCF). This appendix explains how to use RCF from a VMS host. If you issue the BROADCAST command yourself to warn users of an upcoming down-line load, you may want to use RCF.

To connect to the terminal server with RCF, use the CONNECT NODE command:

1. On the command line, specify either the DECnet node name or DECnet node address of the terminal server. This example shows a connection to the terminal server named BEETHO:

   ```
   $ MCR NCP RET
   NCP> CONNECT NODE BEETHO RET
   Console connected (press CTRL/D when finished)
   ```

   or

   ```
   NCP> CONNECT NODE 28.1002 SERVICE PASSWORD 0F23 RET
   Console connected (press CTRL/D when finished)
   ```

2. Press the RETURN key to start the log-in sequence for the remote console.

   Log-in password protection is enabled for the the DECserver 300 remote console port.

3. You must supply the log-in password when the terminal server prompts you with a pound sign (#). (An audible beep signal accompanies the prompt.) The default password is ACCESS.

The prompt indicates that the link to the terminal server has been made. After you enter the correct password, you can begin using DECserver 300 commands.

You can also use the CONNECT command with the terminal server's Ethernet address. The following example shows a connection from a VMS system with the service circuit-ID UNA-0 to a terminal server with the Ethernet address 08-00-2B-04-AA-2B:

```
NCP> CONNECT VIA UNA-0 PHYSICAL ADD 08-00-2B-04-AA-2B RET
```

You may have to specify the service password with the CONNECT command if a maintenance password is specified on the terminal server. To do so, include the SERVICE PASSWORD keywords on your command line and specify the password.

To exit from RCF, type CTRL/D:

```
Local> CTRL/D
```

To exit from NCP, type EXIT:

```
NCP> EXIT RET
$
```

NOTE

If you log out from the terminal server with a LOGOUT command, the port is logged out but the remote console session remains active. Type CTRL/D to exit the remote console session.

The service node prompt reappears, and control passes back to NCP on your VMS system. See *DECserver 300 Management* for detailed information on RCF.